

| | |
|---|-----|
| gaa cag gct gcg gcc att cag tct gaa gga atc cgg ctt tat aaa ggc Glu Gln Ala Ala Ala Ile Gln Ser Glu Gly Ile Arg Leu Tyr Lys Gly 35 40 45 | 144 |
| ggg gag gaa ttc agg gct gat tgc agt gcg gac acg agt atc aat tcg Gly Glu Glu Phe Arg Ala Asp Cys Ser Ala Asp Thr Ser Ile Asn Ser 50 55 60 | 192 |
| gac ttt gac ctg ctt gtc gtg aca gtg aag cag cat cag ctt caa tct Asp Phe Asp Leu Leu Val Val Thr Val Lys Gln His Gln Leu Gln Ser 65 70 75 80 | 240 |
| gtt ttt tcg tcg ctt gaa cga atc ggg aag acg aat ata tta ttt ttg Val Phe Ser Ser Leu Glu Arg Ile Gly Lys Thr Asn Ile Leu Phe Leu 85 90 95 | 288 |
| caa aac ggc atg ggg cat atc cac gac cta aaa gac tgg cac gtt ggc Gln Asn Gly Met Gly His Ile His Asp Leu Lys Asp Trp His Val Gly 100 105 110 | 336 |
| cat tcc att tat gtt gga atc gtt gag cac gga gct gta aga aaa tcg His Ser Ile Tyr Val Gly Ile Val Glu His Gly Ala Val Arg Lys Ser 115 120 125 | 384 |
| gat aca gct gtt gat cat aca ggc cta ggt gcg ata aaa tgg agc gcg Asp Thr Ala Val Asp His Thr Gly Leu Gly Ala Ile Lys Trp Ser Ala 130 135 140 | 432 |
| ttc gac gat gct gaa cca gac cgg ctg aac atc ttg ttt cag cat aac Phe Asp Asp Ala Glu Pro Asp Arg Leu Asn Ile Leu Phe Gln His Asn 145 150 155 160 | 480 |
| cat tcg gat ttt ccg att tat tat gag acg gat tgg tac cgt ctg ctg His Ser Asp Phe Pro Ile Tyr Tyr Glu Thr Asp Trp Tyr Arg Leu Leu 165 170 175 | 528 |
| acg ggc aag ctg att gta aat gcg tgt att aat cct tta act gcg tta Thr Gly Lys Leu Ile Val Asn Ala Cys Ile Asn Pro Leu Thr Ala Leu 180 185 190 | 576 |
| ttg caa gtg aaa aat gga gaa ctg ctg aca acg cca gct tat ctg gct Leu Gln Val Lys Asn Gly Glu Leu Leu Thr Thr Pro Ala Tyr Leu Ala 195 200 205 | 624 |
| ttt atg aag ctg gta ttt cag gag gca tgc cgc att tta aaa ctt gaa Phe Met Lys Leu Val Phe Gln Glu Ala Cys Arg Ile Leu Lys Leu Glu 210 215 220 | 672 |
| aat gaa gaa aag gct tgg gag cgg gtt cag gcc gtt tgt ggg caa acg Asn Glu Glu Lys Ala Trp Glu Arg Val Gln Ala Val Cys Gly Gln Thr 225 230 235 240 | 720 |
| aaa gag aat cgt tca tca atg ctg gtt gac gtc att gga ggc cgg cag Lys Glu Asn Arg Ser Ser Met Leu Val Asp Val Ile Gly Gly Arg Gln 245 250 255 | 768 |
| acg gaa gct gac gcc att atc gga tac tta ttg aag gaa gca agt ctt Thr Glu Ala Asp Ala Ile Ile Gly Tyr Leu Leu Lys Glu Ala Ser Leu 260 265 270 | 816 |
| caa ggt ctt gat gcc gtc cac cta gag ttt tta tat ggc agc atc aaa | 864 |

| | | | | | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gln | Gly | Leu | Asp | Ala | Val | His | Leu | Glu | Phe | Leu | Tyr | Gly | Ser | Ile | Lys | |
| 275 | | | | | | | 280 | | | | | | | 285 | | |
| gca ttg gag cga aat aca aac aaa gtc ttt | | | | | | | | | | | | | | | 894 | |
| Ala | Leu | Glu | Arg | Asn | Thr | Asn | Lys | Val | Phe | | | | | | | |
| 290 | | | | | | | | | | 295 | | | | | | |
| <210> 30 | | | | | | | | | | | | | | | | |
| <211> 298 | | | | | | | | | | | | | | | | |
| <212> PRT | | | | | | | | | | | | | | | | |
| <213> Bacillus subtilis | | | | | | | | | | | | | | | | |
| <400> 30 | | | | | | | | | | | | | | | | |
| Met | Lys | Ile | Gly | Ile | Ile | Gly | Gly | Ser | Val | Gly | Leu | Leu | Cys | Ala | | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | | |
| Tyr | Tyr | Leu | Ser | Leu | Tyr | His | Asp | Val | Thr | Val | Val | Thr | Arg | Arg | Gln | |
| | | 20 | | | | 25 | | | | | | 30 | | | | |
| Glu | Gln | Ala | Ala | Ala | Ile | Gln | Ser | Glu | Gly | Ile | Arg | Leu | Tyr | Lys | Gly | |
| | | 35 | | | | 40 | | | | | 45 | | | | | |
| Gly | Glu | Glu | Phe | Arg | Ala | Asp | Cys | Ser | Ala | Asp | Thr | Ser | Ile | Asn | Ser | |
| | | 50 | | | 55 | | | | | 60 | | | | | | |
| Asp | Phe | Asp | Leu | Leu | Val | Val | Thr | Val | Lys | Gln | His | Gln | Leu | Gln | Ser | |
| | 65 | | | | 70 | | | | 75 | | | 80 | | | | |
| Val | Phe | Ser | Ser | Leu | Glu | Arg | Ile | Gly | Lys | Thr | Asn | Ile | Leu | Phe | Leu | |
| | | 85 | | | | 90 | | | | | 95 | | | | | |
| Gln | Asn | Gly | Met | Gly | His | Ile | His | Asp | Leu | Lys | Asp | Trp | His | Val | Gly | |
| | | 100 | | | | 105 | | | | 110 | | | | | | |
| His | Ser | Ile | Tyr | Val | Gly | Ile | Val | Glu | His | Gly | Ala | Val | Arg | Lys | Ser | |
| | | 115 | | | | 120 | | | | 125 | | | | | | |
| Asp | Thr | Ala | Val | Asp | His | Thr | Gly | Leu | Gly | Ala | Ile | Lys | Trp | Ser | Ala | |
| | 130 | | | | 135 | | | | 140 | | | | | | | |
| Phe | Asp | Asp | Ala | Glu | Pro | Asp | Arg | Leu | Asn | Ile | Leu | Phe | Gln | His | Asn | |
| | 145 | | | | 150 | | | | 155 | | | 160 | | | | |
| His | Ser | Asp | Phe | Pro | Ile | Tyr | Tyr | Glu | Thr | Asp | Trp | Tyr | Arg | Leu | Leu | |
| | | 165 | | | | 170 | | | | 175 | | | | | | |
| Thr | Gly | Lys | Leu | Ile | Val | Asn | Ala | Cys | Ile | Asn | Pro | Leu | Thr | Ala | Leu | |
| | | 180 | | | | 185 | | | | 190 | | | | | | |
| Leu | Gln | Val | Lys | Asn | Gly | Glu | Leu | Leu | Thr | Thr | Pro | Ala | Tyr | Leu | Ala | |
| | | 195 | | | 200 | | | | 205 | | | | | | | |
| Phe | Met | Lys | Leu | Val | Phe | Gln | Glu | Ala | Cys | Arg | Ile | Leu | Lys | Leu | Glu | |
| | 210 | | | | 215 | | | | 220 | | | | | | | |
| Asn | Glu | Glu | Lys | Ala | Trp | Glu | Arg | Val | Gln | Ala | Val | Cys | Gly | Gln | Thr | |
| | 225 | | | | 230 | | | | 235 | | | 240 | | | | |
| Lys | Glu | Asn | Arg | Ser | Ser | Met | Leu | Val | Asp | Val | Ile | Gly | Gly | Arg | Gln | |
| | | 245 | | | | 250 | | | | 255 | | | | | | |

Thr Glu Ala Asp Ala Ile Ile Gly Tyr Leu Leu Lys Glu Ala Ser Leu
260 265 270

Gln Gly Leu Asp Ala Val His Leu Glu Phe Leu Tyr Gly Ser Ile Lys
 275 280 285

Ala Leu Glu Arg Asn Thr Asn Lys Val Phe
290 295

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<210> 31
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<220>
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<400> 31
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Met Gly Thr Asn Val Gln Val Asp Ser Ala Ser Ala Glu Cys Thr Gln
1 5 10 15

```

acg atg agc gga gca tta atg ctg att gaa tca tta aaa aaa gag aaa 96
Thr Met Ser Gly Ala Leu Met Leu Ile Glu Ser Leu Lys Lys Glu Lys
          20           25           30

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```

gta gaa atg atc ttc ggt tat ccg ggc ggg gct gtg ctt ccg att tac 144
Val Glu Met Ile Phe Gly Tyr Pro Gly Gly Ala Val Leu Pro Ile Tyr
          35           40           45

```

gat aag cta tac aat tca ggg ttg gta cat atc ctt ccc cgt cac gaa 192
 Asp Lys Leu Tyr Asn Ser Gly Leu Val His Ile Leu Pro Arg His Glu
 50 55 60

```

caa gga gca att cat gca gcg gag gga tac gca agg gtc tcc gga aaa 240
Gln Gly Ala Ile His Ala Ala Glu Gly Tyr Ala Arg Val Ser Gly Lys
   65           70           75           80

```

```

ccg ggt gtc gtc att gcc acg tca ggg ccg gga gcg aca aac ctt gtt 288
Pro Gly Val Val Ile Ala Thr Ser Gly Pro Gly Ala Thr Asn Leu Val
85          90          95

```

```

aca ggc ctt gct gat gcc atg att gat tca ttg ccg tta gtc gtc ttt      336
Thr Gly Leu Ala Asp Ala Met Ile Asp Ser Leu Pro Leu Val Val Phe
          100           105           110

```

aca ggg cag gta gca acc tct gta atc ggg agc gat gca ttt cag gaa 384
 Thr Gly Gln Val Ala Thr Ser Val Ile Gly Ser Asp Ala Phe Gln Glu
 115 120 125

```

gca gac att tta ggg att acg atg cca gta aca aaa cac agc tac cag      432
Ala Asp Ile Leu Gly Ile Thr Met Pro Val Thr Lys His Ser Tyr Gln
    130          135          140

```

gtt cgc cag ccg gaa gat ctg ccg cgc atc att aaa gaa gcg ttc cat 480
 Val Arg Gln Pro Glu Asp Leu Pro Arg Ile Ile Lys Glu Ala Phe His
 145 150 155 160